Patent Claims

1. (currently amended) An installation, in particular a vacuum process installation, for processing a substrate ~~(130; 230; 330; 430; 530)~~, in particular a semiconductor wafer, having at least one processing station ~~(582-588)~~ , characterized in that to hold and/or transport the substrate ~~(130; 230; 330; 430; 530)~~, the installation comprises at least one frame ~~(110; 210; 310; 410; 510)~~ with a clamped-in carrier (120; 220; 320; 420; 520), it being possible for the substrate, ~~(130; 230; 330; 430; 530)~~ to be secured to the carrier, ~~(120; 220; 320; 420; 520)~~ over a large area.

2. (currently amended) The installation as claimed in claim 1, characterized in that the at least one processing station ~~(582-588)~~ comprises a chuck electrode, ~~(140; 240; 340; 440) ,~~ having a planar outer surface, ~~(141; 244; 341; 441),~~ it being possible for the carrier ~~(120; 220; 320; 420; 520)~~ to be positioned parallel and adjacent to the outer surface ~~(141; 244; 341; 441)~~ of the chuck electrode. ~~(140; 240; 340; 440).~~

3. (currently amended) The installation as claimed in claim 2, characterized

a) in that the carrier ~~(120; 220; 320)~~ consists of a nonconductive dielectric material and is provided with a conductive layer ~~(122; 222; 322)~~ on one side;

b) in that the frame ~~(110; 210; 310)~~ is conductive at least regionally; and

c) in that the carrier ~~(120; 220; 320)~~ is clamped in the frame ~~(110; 210; 310)~~ in such a way that the

conductive layer ~~(122; 222; 322)~~ is contact-connected to the conductive region of the frame. ~~(110; 210; 310).~~

4. (currently amended) The installation as claimed in claim 3, characterized in that the carrier ~~(120; 220; 320)~~ is formed by a vacuum-compatible, thermally stable film, in particular of polyimide, and the conductive layer ~~(122; 222; 322)~~ is formed by a vapor-deposited metallization or a conductive polymer.

5. (currently amended) The installation as claimed in claim 4, characterized in that the film ~~(120; 220; 320)~~ is from 50-200 μm, preferably approximately 100 μm, thick, and the metallization ~~(122; 222; 322)~~ is from 0.03-0.5 μm, preferably approximately 0.1 μm, thick.

6. (currently amended) The installation as claimed in ~~one of~~ claim~~s~~ 2, ~~to 5,~~ characterized in that the chuck electrode ~~(347)~~ is constructed on a base body which comprises a radiofrequency electrode, ~~(345),~~ the chuck electrode ~~(347)~~ being electrically insulated from the radiofrequency electrode, ~~(345),~~ with in particular an insulated leadthrough ~~(348)~~ passing through the radiofrequency electrode ~~(345)~~ being provided for contact-connection of the chuck electrode. ~~(340).~~

7. (currently amended) The installation as claimed in ~~one of~~ claim~~s~~ 2, ~~to 6,~~ characterized in that the chuck electrode ~~(240)~~ comprises a dielectric, ~~(243),~~ in particular a plate of aluminum oxide Al_2O_3, which is arranged in such a way that it lies between the chuck electrode ~~(240)~~ and the carrier ~~(220)~~ when the carrier ~~(220)~~ has been positioned parallel and adjacent to the outer surface (244) of the chuck electrode. ~~(240).~~

8. (currently amended) The installation as claimed in ~~one of~~ claim~~s~~ 2, ~~to 7,~~ characterized in that the

processing station ~~(582-588)~~ comprises a voltage source ~~(150; 250; 350)~~ for applying a voltage between the frame ~~(110; 210; 310)~~ and the chuck electrode, ~~(140; 240; 340),~~ it being possible in particular to generate a DC voltage of 200-1500 V, preferably 500-1000 V.

9. (currently amended) The installation as claimed in one of claim~~s~~ 2, ~~to 8,~~ characterized in that the chuck electrode ~~(440)~~ comprises a plurality of regions of different polarity.

10. (currently amended) The installation as claimed in ~~one of~~ claim~~s~~ 2, ~~to 9,~~ characterized in that the processing station ~~(582-588)~~ comprises a gas feed ~~(142; 242; 342; 442)~~ for feeding a gas into a space between the chuck electrode (~~140; 240; 340; 440)~~ and the carrier, ~~(120; 220; 320; 420),~~ it preferably being possible to generate a gas pressure of more than 100 Pa.

11. (currently amended) A frame for the installation as claimed in ~~one of~~ claim~~s~~ 1 ~~to 10~~ for holding and/or transporting the substrate, ~~(130; 230; 330; 430),~~ characterized in that it is designed to clamp in a carrier, ~~(120; 220; 320; 420),~~ in particular a film.

12. (currently amended) The frame as claimed in claim 11, characterized in that it is at least regionally conductive, in such a manner that a conductive layer ~~(122; 222; 322)~~ of the clamped-in carrier ~~(120; 220; 320)~~ can be contact-connected through the conductive region.

13. (currently amended) A film which is to be clamped into the frame as claimed in claim 11, ~~or 12,~~ characterized in that on one side it has a conductive layer, ~~(122; 222; 322),~~ which is preferably formed by a vapor-deposited metallization or a conductive polymer,

and in that it is vacuum-compatible and thermally stable, the film substantially being produced from a non-conductive dielectric material, in particular from polyimide.

14. (currently amended) A processing station for the installation as claimed in ~~one of~~ claim~~s~~ 2, ~~to 10,~~ characterized by a chuck electrode ~~(140; 240; 340; 440) with~~ a planar outer surface, ~~(141; 244; 341; 441),~~ the extent of which corresponds to at least one main surface of the substrate, ~~(130; 230; 330; 430),~~ it being possible for the chuck electrode, ~~(140; 240; 340; 440),~~ together with a carrier ~~(120; 220; 320; 420)~~ positioned parallel and adjacent to the outer surface ~~(141; 244; 341; 441)~~ of the chuck electrode, to form an electrostatic chuck device.

15. (currently amended) A method for processing a substrate, ~~(130; 230; 330; 430),~~ in particular a semiconductor wafer, in a vacuum process installation, characterized in that the substrate ~~(130; 230; 330; 430),~~ in order to be held and/or transported, is secured over a large area to a carrier ~~(120; 220; 320; 420) clamped~~ in a frame. ~~(110; 210; 310; 410).~~

16. (currently amended) The method as claimed in claim 15, characterized in that the substrate ~~(130; 230; 330; 430)~~ is adhesively bonded to a first planar main surface ~~(121; 221; 321; 421)~~ of the carrier ~~(120; 220; 320; 420)~~ by means of a vacuum-compatible and releasable adhesive.

17. (currently amended) The method as claimed in claim 16, characterized in that a chuck electrode ~~(140; 240; 340; 440)~~ is arranged with a planar outer surface ~~(141; 244; 341; 441)~~ parallel and adjacent to a second planar main surface ~~(123; 223; 323; 423)~~ of the carrier, ~~(120; 220; 320; 420),~~ the second planar main

surface ~~(123; 223; 323; 423)~~ being on the opposite side from the first planar main surface. ~~(121; 221; 321; 421).~~

18. (currently amended) The method as claimed in claim 17, characterized in that the first main surface ~~(121; 321; 421)~~ of the carrier ~~(120; 320; 420)~~ is provided with a conductive layer. ~~(122; 322; 422).~~

19. (currently amended) The method as claimed in claim 18, characterized in that the chuck electrode ~~(347)~~ is built on a base body which is formed by a radiofrequency electrode (345), the chuck electrode ~~(347)~~ being electrically insulated from the radiofrequency electrode, ~~(345),~~ and the voltage being applied between the chuck electrode ~~(347)~~ and the frame ~~(310)~~ in particular by means of an insulated leadthrough. ~~(348).~~

20. (currently amended) The method as claimed in claim 17, characterized in that the second main surface ~~(223)~~ of the carrier ~~(220)~~ is provided with a conductive layer, ~~(222),~~ and in that a dielectric ~~(243)~~ is arranged between the chuck electrode ~~(240)~~ and the second planar main surface ~~(223)~~ of the carrier. ~~(220).~~

21. (currently amended) The method as claimed in ~~one of~~ claims, 17 ~~to 20,~~ characterized in that a voltage is applied between the frame ~~(110; 210; 310)~~ and the chuck electrode. ~~(140; 240; 340).~~

22. (currently amended) The method as claimed in ~~one of~~ claims 17, ~~to 21,~~ characterized in that to control the temperature of the substrate ~~(130; 230; 330; 430),~~ a gas at a superatmospheric pressure is introduced into a space between the second main surface ~~(123; 223; 323; 423)~~ of the carrier ~~(120; 220; 320; 420)~~ and the planar outer surface ~~(141; 244; 341; 441)~~ of the chuck

electrode. ~~(140; 240; 340; 440).~~

23. (currently amended) The method as claimed in ~~one of~~ claim~~s~~ 17, ~~to 22,~~ characterized in that to release the substrate ~~(130; 230; 330)~~ the conductive layer ~~(122; 222; 322)~~ of the carrier ~~(120; 220; 320)~~ is short-circuited with the chuck electrode. ~~(140; 240; 340).~~